



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/534,498	05/10/2005	Andrew C. Lewin	124-1117	4702
23117	7590	07/09/2007	EXAMINER	
NIXON & VANDERHYE, PC			BRAINARD, TIMOTHY A	
901 NORTH GLEBE ROAD, 11TH FLOOR				
ARLINGTON, VA 22203			ART UNIT	PAPER NUMBER
			3662	
			MAIL DATE	DELIVERY MODE
			07/09/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/534,498	LEWIN ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Timothy A. Brainard	3662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 26 April 2007.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-63 is/are pending in the application.
- 4a) Of the above claim(s) 3,4,7-15,20,22-32 and 57-63 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1,2,5,6,16-19,21 and 33-56 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 10 May 2005 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)                       |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application             |
| Paper No(s)/Mail Date _____  | 6) <input checked="" type="checkbox"/> Other: <u>See Continuation Sheet</u> . |

Continuation of Attachment(s) 6). Other: Information disclosure citation.

Art Unit: 3662

## DETAILED ACTION

### ***Election/Restrictions***

This application contains claims directed to more than one species of the generic invention. These species are deemed to lack unity of invention because they are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In order for more than one species to be examined, the appropriate additional examination fees must be paid. The species are as follows:

Species I, claim(s) 4-6 and 57, drawn to spots are arranged in a particular way and focus/unfocused spots are used to distinguish between different distances.

Species II, claim(s) 7-9, 28-32, and 48 drawn to different spot arrays and periodically alter the arrays to avoid ambiguity.

Species III, claim(s) 12, and 10-12 and 58, drawn to spot characteristics as color or shape to avoid ambiguity.

Species IV, claim(s) 20, 22-27, 59-63, is drawn to imaging spots from several directions to avoid ambiguity.

Species V, claim(s) 13-15, drawn to using spots as intersection between lines.

Species VI, claim(s) 33-47, is drawn to producing spots with a particularly shaped light guide.

The claims are deemed to correspond to the species listed above in the following manner:

The following claim(s) are generic: 1-2, 5-6, 16-19, 21, and 48-56

The species listed above do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, the species lack the same or corresponding special technical features for the following reasons:

Species I has the special technical feature of using focused and unfocused spots to determine distance and is not required of the other groups.

Species II has the special technical feature of periodically altering the spot arrays and is not required of the other groups.

Species III has the special technical feature of the spots having a color and shape that is and is not required of the other groups.

Art Unit: 3662

Species IV has the special technical feature of imaging with the spots from several directions and is not required in the other groups.

Species V has the special technical feature of the spots being intersections between lines and is not required in the other groups.

Species VI has the special technical feature of producing the light with a particularly shaped light guide and is not required in the other groups.

In the Remarks/Arguments filed on 4/26/2007 a provisional election was made with traverse to prosecute the invention of Group VI, claims 33-47. Affirmation of this election must be made by applicant in replying to this Office action. Claims 3-4, 7-15, 20, 22-32, and 57-63 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "large depth of field" in claim 6 is a relative term which renders the claim indefinite. The term "large field of depth" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one

Art Unit: 3662

of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 5-6, 16, and 55-56 are rejected under 35 U.S.C. 102(b) as being anticipated by Sorimachi et al (US 4867570). Sorimachi teaches (claim 1 and 55) a ranging apparatus comprising an illumination means for illuminating a scene with a projected two dimensional array of light spots, a detector for detecting the location of spots in the scene and a processor adapted to determine, from the detected location of a spot in the scene, the range to that spot (col 1, lines 23-31 and fig 1), (claim 2 and 56) the illumination means and detector are arranged such that each spot in the projected array appears to move in the detected scene, from one range to another, along an axis and the axis of apparent motion of each adjacent spot in the projected array is different (fig 1), (claim 5) the processor is adapted to resolve any possible ambiguity in range to each spot (col 2), (claim 6) the illumination means has a large depth of field (col 9 line 2), (claim 16) the detector comprises a two dimensional CCD or CMOS array (col 5 lines 5-10).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sorimachi as applied to claim 1 above, and further in view of Uomori (US 6618123). Sorimachi teaches (claim 17) the illumination means is adapted such that the two dimensional array of spots (col 4, lines 7-50), (claim 18) the detector is adapted to capture a visible image of the scene as well as the location of the infrared spots in the scene (col 5, lines 5-30). Uomori teaches the spots being infrared spots (col 5, lines 65 – col 6, lines 9). It would have been obvious to modify Sorimachi to include the spots being infrared spot because it is one of multiple design choices with no new or unexpected results.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sorimchi as applied to claim 1 above, and further in view of Linn et al (US 2004/0149841). Linn teaches the baseline between the illumination means and the detector is between 50 and 100 mm. It would have been obvious to modify Sorimachi to include teaches the baseline between the illumination means and the detector is between 50 and 100 mm because it is one of multiple design choices with no new or unexpected results.

Art Unit: 3662

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sorimachi in view of Uomori as applied to claim 18 above, and further in view of Andersson (US 6545749). Andersson teaches the apparatus including scanning optics in the optical path adapted to periodically redirect the viewing direction of the detector (col 5, lines 33-42). It would have been obvious to modify Sorimachi in view of Uomori to include the apparatus including scanning optics in the optical path adapted to periodically redirect the viewing direction of the detector because it would allow the operator to scan an area.

Claims 33-43, 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sorimachi as applied to claim 1 above, and further in view of Magarill (US 5625738). Magarill teaches (claim 33) the illumination means comprises a light source arranged to illuminate part of the input face of a light guide, the light guide comprising a tube having substantially reflective sides and being arranged together with projection optics so as to project an array of distinct images of the light source towards the scene (fig 1 and col 6 lines 25-52), (claim 34) the light guide comprises a tube having a square cross section (fig 1a). (claim 35) the light guide comprises a tube having reflective internal surfaces (abs). It would have been obvious to modify Sorimachi to include the illumination means comprises a light source arranged to illuminate part of the input face of a light guide, the light guide comprising a tube having substantially reflective sides and being arranged together with projection optics so as to project an array of distinct images of the light source towards the scene, the light guide comprises a tube having a square cross section, and the light guide comprises a tube having reflective internal

Art Unit: 3662

surfaces because it is one of several ways to transmit the light onto a scene with no new or unexpected results. Sorimachi teaches (claim 37) the projection optics comprises a projection lens (fig 1 item 2), (claim 38) the light source is arranged to illuminate the input face of the light guide through a mask (fig 1, item 3), (claim 39) the light source illuminates the input face of the light guide with a non-circular shape (fig 2 item Wn), (claim 40 and 46) the light source illuminates the input face of the light guide with a shape which is non symmetric about the axes of reflection of the light guide (fig 2, item Wn), (claim 41) the illumination means comprises more than one light source, each light source arranged to illuminate part of the input face of the light guide (fig 1, item 3), (claim 42) the light sources are arranged in a regular pattern (fig 2, item 3), (claim 43) the light sources are arranged to provide differing spot densities (fig 1 and 2). With respect to claim 36, it is expected that the light guide comprises a tube of solid material adapted such that a substantial amount of light incident at an interface between the material of the tube and surrounding material undergoes total internal reflection.

Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sorimachi in view of Magarill as applied to claim 41 above, and further in view of Marchi (US 6512575). Marchi teaches at least one light source emits light at a different wavelength to another light source. It would have been obvious to modify Sorimachi in view of Magarill to include at least one light source emits light at a different wavelength to another light source because it is one of multiple design choices with no new or unexpected results.

Claim 45 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sorimachi in view of Magarill as applied to claim 41 above, and further in view of Ariyama et al (US 2003/0012115). Ariyama teaches at light one light source is shaped diffently to another light source. It would have been obvious to modify Sorimachi in view of Magarill to include at light one light source is shaped diffently to another light source because it is one of multiple design choices with no new or unexpected results.

Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sorimachi in view of Magarill as applied to claim 41 above, and further in view of Katz (US 5012453). Katz teaches at least one light source is located within the light guide at a different depth to another light source. It would have been obvious to modify Sorimachi in view of Magarill to include at least one light source is located within the light guide at a different depth to another light source because it is one of multiple design choices with no new or unexpected results.

Claim 49 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sorimachi as applied to claim 1 above, and further in view of Rudd et al (US 5519204). Rudd teaches a ranging apparatus further comprising a location sensor (col 4, lines 14-25). It would have been obvious to modify Sorimachi to include a ranging apparatus further comprising a location sensor because it is one of multiple design choices with no new or unexpected results.

Claim 50 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sorimachi as applied to claim 1 above, and further in view of Farmer (US 5748295). Farmer teaches a proximity sensor incorporated in a ranging apparatus (col. 9, lines 24-

Art Unit: 3662

35). It would have been obvious to modify Sorimachi to include a proximity sensor incorporated in a ranging apparatus because it is one of multiple design choices with no new or unexpected results.

Claim 51 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sorimachi as applied to claim 1 above, and further in view of Rajchel et al (US 6719654). Rajchel teaches a target identification incorporated in a ranging apparatus (col 1, lines 43-49). It would have been obvious to modify Sorimachi to include a target identification incorporated in a ranging apparatus because it is one of multiple design choices with no new or unexpected results.

Claim 52 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sorimachi as applied to claim 1 above, and further in view of Frucht (US 5910767). Frucht teaches a intruder detection incorporated in a ranging apparatus (col 1, lines 35-43). It would have been obvious to modify Sorimachi to include a intruder detection incorporated in a ranging apparatus because it is one of multiple design choices with no new or unexpected results.

Claim 53 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sorimachi as applied to claim 1 above, and further in view of Ittycheriah et al (US 6580814). Ittycheriah teaches a biometric modeling apparatus incorporated in a ranging apparatus (abs). It would have been obvious to modify Sorimachi to include a biometric modeling apparatus incorporated in a ranging apparatus because it is one of multiple design choices with no new or unexpected results.

Claim 54 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sorimachi as applied to claim 1 above, and further in view of Nakashima (US 6721465). Nakashima teaches a document scanner comprising an imager and a ranging apparatus, wherein the imager is adapted to process the range information from the document to determine the extent of curvature thereof and process the detected image to correct for any curvature (col 7, lines 47-62). It would have been obvious to modify Sorimachi to include a document scanner comprising an imager and a ranging apparatus, wherein the imager is adapted to process the range information from the document to determine the extent of curvature thereof and process the detected image to correct for any curvature because it is one of multiple design choices with no new or unexpected results.

***Response to Arguments***

Applicant's arguments, see Remarks, filed 4/26/2007, with respect to the restriction requirement have been fully considered and are persuasive. The restriction of 2/26/2007 has been withdrawn. A new restriction in conformity with respect to a national stage application under a PCT International application has been written.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy A. Brainard whose telephone number is (571) 272-2132. The examiner can normally be reached on Monday - Friday 8:00 - 5:00.

Art Unit: 3662

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Tarcza can be reached on (571)272-6979. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TAB



THOMAS H. TARCZA  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 3600